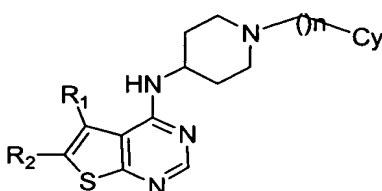


# CLAIMS

*What is claimed is:*

1. A compound having the formula

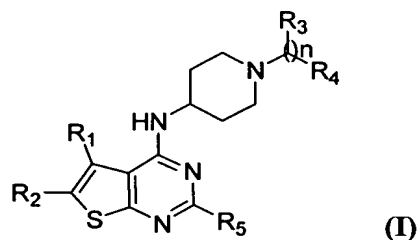


(I)

5 wherein

- R<sub>1</sub> and R<sub>2</sub> are independently hydrogen; lower alkyl; C<sub>1</sub>-C<sub>6</sub> cycloalkyl or cycloheteroalkyl; halogen or halo-substituted alkyl; or R<sub>1</sub> and R<sub>2</sub>, taken together, form a C<sub>5</sub>-C<sub>7</sub> cycloalkyl or cycloheteroalkyl ring;
  - Cy is a single or conjugated substituted or unsubstituted alicyclic or aromatic ring structure; and
  - n is 0, 1, 2, 3, 4 or 5; and pharmaceutically acceptable salts and/or esters thereof.
2. The compound of claim 1, wherein R<sub>1</sub> and R<sub>2</sub>, taken together, form a C<sub>5</sub>-C<sub>7</sub> cycloalkyl or cycloheteroalkyl ring.
  3. The compound of claim 2, wherein R<sub>1</sub> and R<sub>2</sub>, taken together, form a cyclohexyl ring.
  - 15 4. The compound of claim 1, wherein n is 0, 1, 2 or 3.
  5. The compound of claim 1, wherein said lower alkyl is C<sub>1</sub>-C<sub>5</sub> alkyl.
  6. The compound of claim 1, wherein said compound is a 5-HT receptor antagonist.
  7. The compound of claim 6, wherein said compound is a 5-HT<sub>2</sub> receptor antagonist.
  8. The compound of claim 7, wherein said compound is a 5-HT<sub>2A, B or C</sub> receptor antagonist.
  - 20 9. The compound of claim 7, wherein said compound is a 5-HT<sub>2B</sub> receptor antagonist.
  10. The compound of claim 1, wherein said compound is [1-(2-Fluoro-benzyl)-piperidin-4-yl]-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.

11. The compound of claim 1, wherein said compound is [1-(3-Fluoro-benzyl)-piperidin-4-yl]-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.
12. The compound of claim 1, wherein said compound is [1-(4-Fluoro-benzyl)-piperidin-4-yl]-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.
- 5 13. The compound of claim 1, wherein said compound is [1-(4-Methyl-benzyl)-piperidin-4-yl]-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.
14. The compound of claim 1, wherein said compound is (1-Benzo[1,3]dioxol-5-ylmethyl-piperidin-4-yl)-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.
15. The compound of claim 1, wherein said compound is (5,6,7,8-Tetrahydro-  
10 benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-[1-(4-trifluoromethyl-benzyl)-piperidin-4-yl]-amine.
16. The compound of claim 1, wherein said compound is (1-Benzhydryl-piperidin-4-yl)-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.
17. The compound of claim 1, wherein said compound is (1-Naphthalen-2-ylmethyl-  
15 piperidin-4-yl)-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.
18. The compound of claim 1, wherein said compound is (1-Phenethyl-piperidin-4-yl)-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.
19. The compound of claim 1, wherein said compound is [1-(3-Phenyl-propyl)-piperidin-4-yl]-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.
- 20 20. The compound of claim 1, wherein said compound is (5,6,7,8-Tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-[1-(4-trifluoromethoxy-benzyl)-piperidin-4-yl]-amine.
21. The compound of claim 1, wherein said compound is [1-(4-Methoxy-benzyl)-piperidin-4-yl]-(5,6,7,8-tetrahydro-benzo[4,5]thieno[2,3-d]pyrimidin-4-yl)-amine.
- 25 22. A compound having the formula



wherein

- $R_1$  and  $R_2$  are independently be hydrogen; lower alkyl,  $C_1$ - $C_6$  cycloalkyl or cycloheteroalkyl; halogens or halo-substituted alkyl; or  $R_1$  and  $R_2$ , taken together, form a  $C_5$ - $C_7$  cycloalkyl or cycloheteroalkyl ring;
- $R_3$  and  $R_4$  are independently Ar which is a single or conjugated substituted or unsubstituted aromatic ring structure;
- $R_5$  is H,  $(C_1$ - $C_5)$ alkyl,  $(C_1$ - $C_6)$ cycloalkyl, halogen substituted alkyl,  $NH_2$ ,  $NHMe$ ,  $NMe_2$ ,  $NHEt$ ,  $NH(Et)_2$ ,  $NH(Pr)$ ,  $N(Pr)_2$ ; and
- $n$  is 0, 1, 2, 3, 4 or 5; and pharmaceutically acceptable salts and/or esters thereof.

23. A pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat depression.
24. A pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat a CNS disorder.
25. A pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat migraine.
26. A method of treating depression, comprising administering to a patient in need thereof a pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat said depression.
27. A method of treating a CNS disorder, comprising administering to a patient in need thereof a pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat said CNS disorder.
28. A method of treating a CNS disorder, comprising diagnosing a patient in need of treatment and administering to a patient in need thereof a therapy including a

pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat said CNS disorder.

- 5 29. A method of treating pulmonary hypertension, comprising administering to a patient in need thereof a pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat said pulmonary hypertension.
30. A method of treating pulmonary hypertension, comprising diagnosing a patient in need of treatment and administering to a patient in need thereof a therapy including a pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat said pulmonary hypertension.
- 10 31. A method of treating systemic hypertension, comprising administering to a patient in need thereof a pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat said systemic hypertension.
- 15 32. A method of treating systemic hypertension, comprising diagnosing a patient in need of treatment and administering to a patient in need thereof a therapy including a pharmaceutical composition comprising the compound of claim 1 in an amount effective to treat said systemic hypertension.